



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

P A P E R S

IN

COLONIES AND TRADE.



UNDER this Class the Committee has thought proper to publish extracts from sundry letters received from Dr. Wallich, superintendent of the botanic garden of Calcutta. It will be perceived that the principal object in them is the naturalization in Europe of certain varieties of rice, which are at present objects of cultivation in Napal, and in other districts bordering on the Himalaya Mountains, and therefore subject during Winter to considerable degrees of cold. The Society of Arts having been liberally furnished with seed by Dr. Wallich, and desirous of concurring with that gentleman in his praiseworthy exertions for the public benefit, have distributed packets of the different seeds to several public establishments and individuals in the British islands, and also in France, in Switzerland, in Germany, and in Russia. The only report that has hitherto been received by the Society, concerning the result of experiments made with these seeds, is contained in the subjoined letter from Mr. Anderson, curator of the botanic garden at Chelsea, belonging to the Company of Apothecaries of London.

SIR ;

Botanic Garden, Calcutta,
July 18th, 1819.

I HAD the satisfaction to receive your favour of the 23rd December last, a short time ago, and I cannot better express the sense which I entertain of the honour conferred on me by your Society having elected me a corresponding member, in the room of my lamented friend and predecessor, the late Dr. Roxburgh, than by hastening to submit to their consideration the result of some inquiries directed towards a very interesting object of agriculture. I allude to a sort of mountain-rice, cultivated in Nepal, at such elevations, and under such vicissitudes of climate, as to render it extremely probable that it may become acclimatized in the north of Europe. I received it during the last fortnight from Mr. Robert Stuart, resident at the court of the rajah of Katmandu, to whose indefatigable zeal and exertions this valuable discovery is entirely to be attributed. As all the information which I am able on this occasion to present to the Society is derived from his correspondence, I beg leave to subjoin some extracts of his letters to me on this subject, not doubting that I shall have it in my power, at some future period, to offer from the same source a more full account of the soil, temperature, and elevation of the countries where the grain is produced, and of the cultivation and nature of the plant itself. In the mean time I take the liberty to send you a sample of the rice, having previously satisfied myself of its goodness, by soaking some of it in standing water, during the operation of which process it began to sprout in less than three days from its immersion. I have likewise addressed several of my correspondents who are residing at Almorah, Sirinagur, and other countries contiguous to the Himalaya Mountains, on this important subject, and the information which I expect to derive from all those quarters, superadded to the prospects held out from Nepal, will afford

me ample matter for future communications, which I hope may not prove unacceptable to your Society, notwithstanding the unpromising results of the experiments which were made some years ago under the direction of Sir Joseph Banks with a similar sort of rice, obtained by Sir John Murray from Sirinagur.

In the course of another month I propose doing myself the pleasure of transmitting to you, for the purpose of being laid before the Society, a quantity of the common Napal paper, produced from the bark of some sorts of *Daphne*, described by me in the 13th Vol. of the Asiatic Researches, about to be published, together with a bale of the dried entire stems of *urtica tenacissima* of Roxburgh (caloe hemp), in order that they may, if it should be deemed fit by the Society, be submitted to the operation of the ingenious apparatus of Mr. Lee, and of Messrs. Hill and Bundy, adverted to in the 33rd Volume of their Transactions, and in the 8th, 9th, and 10th numbers of the Journal of Science and Arts.

I cannot conclude this address without requesting, that you will assure the Society, that nothing will ever contribute more to my happiness than to be able occasionally to afford my humble mite to the grand object contemplated by them, and that I shall exert myself to the utmost, with a view of submitting from time to time, such matters as I may hope will not prove altogether unworthy of their consideration.

I am, Sir,

A. Aikin, Esq.

&c. &c. &c.

Secretary, &c. &c.

N. WALLICH, *Superintendent.*

Extracts of Letters from Mr. ROBERT STUART, resident at Napal, to Mr. WALLICH, Superintendent of the Botanic Garden, Calcutta, respecting Mountain Rice.

June 13th.

THE minister has just sent me in a jar of grain, which he tells me grows on the Snowy mountains, by which I understand him to mean, the mountains beyond the northern barrier of the valley, not those covered with perpetual snow. I hasten to forward for your inspection a small parcel of this, and beg of you to let me know what you think of it. It resembles a species of rice; it certainly is raised in a pretty cold climate. As it has just come in, I have not had time to make minute inquiries regarding it; but if the information I may receive prove in any degree flattering, I will send you a good supply of it, together with all the particulars that I can collect.

June 19th.

I HASTEN to communicate to you the few particulars which I have learned regarding the mountain rice, a parcel of which was forwarded to you. It is cultivated in considerable abundance, I am told, among the mountains of Jumlah, which are situated to the northward of the province of Dotée; and it was introduced from that quarter a few years ago, and sown among our northern hills. That which I have procured, was brought from the Jageer of Devie Bhuggut, a distance of four days journey from Katmandu. The seed is first steeped for three days in jars of tank or rain water, and then removed into bags of gunny or matting, where it is kept in a moist state till it shows signs of vegetation, when it is sown in khets, previously prepared for the purpose. They lay some stress on the use of

tank water, for steeping the grain in, alleging that the water of the mountain streams is too cold for the purpose; the same is to be used in occasionally sprinkling the grain to keep it moist in the bags. When they have once succeeded in raising it a few inches from the ground, they consider themselves secure of the crop, as a fall of snow does not then injure it. You will remark that this rice in the husk has a reddish tinge, which it preserves in some degree, I think, when boiled. It is large and fat; though sweet in taste, it is of so inferior a quality, that the people in this part of the country know little about it; and I have not even been able to learn from them the name given to it in the hills: the use of it, I fancy, is entirely confined to the inhabitants of them. It is, however, certainly worthy of attention, and I will not neglect any opportunity of getting more correct information regarding it. The minister has politely offered to procure for me a small quantity of it from the Jumlah Hills; and I am about to send some people to the hills above Gossain-Than, where both rice and wheat are cultivated, in order to see if there be any difference in the grain.

Botanic Garden,
September 2nd, 1819.

SIR;

IN continuation of my letter of the 30th July, I have the honour to inform you, that the indefatigable exertions of the resident at Napal, Mr. Robert Stuart, have brought to light some further interesting particulars respecting several kinds of grain produced on the stupendous mountains of the Northern Hindoostan, which I hasten to submit to the Society, in the annexed extracts of the letters from that invaluable correspondent.

As it may be interesting to the Society to be furnished with some particulars respecting the place whence two of the

sorts of rice, as well as the wheat, have been procured, I beg leave to submit to you the following account, which I received last year from my highly esteemed friend the hon. Edw. Gardner, late resident at the court of the rajah of Napal : “ The general direction from Katmandu of Gossain-Than, or, as it is more commonly called, Neel-Khaunt, is very little to the westward of north. Ramcha, a village noted by Kirkpatrick in his account of Napal, is placed in his map almost at the foot of the Himalaya ; and as Gossain-Than is said to be thirteen coss beyond, or to the northward (or N. E. perhaps) of Ramcha, it is inferred, that it must be situated within the snowy range ; from which circumstance the height or elevation of that place may be tolerably well estimated. The distance from Katmandu, which is calculated at forty coss, it is to be remembered is not the horizontal, which does not probably exceed one-third ; the remaining two-thirds, or something less, being allowed for the windings of the pathways, and the continual and very considerable ascents and descents, which constitute a road in these mountains. As an additional reason for supposing that Gossain-Than, is situated within the range of the Himalaya, it appears to be nearly on the route to Keeroo (one of the principal passes into Thibet), which place is to the north of the Snowy Mountains, and is usually reached by a traveller from Katmandu, I believe, in less than ten days, while it takes seven days to get to Gossain-Than, which would seem, therefore, to be about three days journey to the south of Keeroo, the probable distance of the Himalaya south of that place.”

As soon as the rice which has been obtained from the fountain head, the mountains of Jumlah, arrives here, it shall directly be transmitted to you ; in the mean time I have thought it my duty not to defer addressing you this letter, together with the later dispatches to which it refers, not

doubting, that the highly meritorious and successful researches of my excellent friend Mr. Stuart, who has brought to light such important articles of introduction into the united kingdom, will meet with the approbation of the Society.

I take this opportunity of informing you, that I have sent a quantity of common Napal paper in bundles, each containing 100 sheets, in a chest of dried specimens of plants.

I am, Sir,

A. Aikin, Esq.,

&c. &c. &c.

Secretary, &c. &c.

N. WALLICH.

Extracts from Mr. ROBERT STUART's Letters continued.

July 11th, 1819.

I AM sorry that I cannot at this moment add to the information respecting the mountain rice; but I have taken means to procure what is necessary. It is little known to the inhabitants of the valley, and we labour under great disadvantages (in fact under great difficulty), in getting correct information regarding any thing beyond our reach; I hope, therefore, that you will not attribute the delay to any indifference on my part, either to the subject or your wishes, for I will take the earliest and the best opportunity of supplying what is wanting. That the rice is raised at a great elevation, in spots covered during some months with snow, I cannot doubt; and that it grows in spite of snow appears probable from the foregoing circumstances. I mentioned, I think, in my former letter, that the precarious part of the cultivation is in raising it from the ground, lest frost and snow should arrest and destroy it; but that all anxiety is at an end, when it has fairly risen two or three inches high. A small quantity which I planted in our garden by way of experiment, has sprung up rapidly. I

have just transplanted it, and will see what sort of grain it will yield.

July 16th.

SINCE my last letter, forwarded on the 11th, I have had the pleasure to receive your letter dated the 1st and 2nd instant, with a paper containing an account of the experiments made in England, on the rice from Sirinagur. With regard to this subject, it appears to me, that the hopes entertained of success were too sanguine. Sirinagur, though certainly an elevated and cold climate, compared with Hindoostan, is still but the threshold to these countries, and cannot be spoken of in the same terms as the mountains of Hindoostan, called Jumlah, which form part of the continuous snowy range, or even to the spot from which the rice forwarded to you was procured. It is probable therefore, that the grain of the one may differ essentially from that of the other. I have no doubt of the accuracy of the account given to me, that it is raised on the elevated and snowy tracts alluded to; but in case of any mistake, or for fear the grain introduced into a milder climate should degenerate, the minister has promised to procure me some from Jumlah; but owing to the distance and the season, some time must necessarily elapse before I can receive it. Be assured I shall not relax from my endeavours to sift this question thoroughly, so that the fairest trial for the introduction of that grain to England may be given it.

July 21st.

I TOLD you I had sent an exploring party to Gossain-Than, and had given them orders to inquire, and procure some of the rice cultivated in that quarter, and also specimens of it in flower and grain. Two of the boys returned yesterday,

with some young pines and other plants, and said the hill rice was not yet above a foot and a half above the ground. They are, however, instructed to procure it, as well as the wheat raised by the Bhooteahs, which is represented to be different from any known here. You shall be informed of the result.

August 2nd.

I HOPE in time, to gain more satisfactory accounts respecting this interesting article, and, at the same time, some fresh grain from the fountain-head, viz, the Jumlah Mountains. These seem to be a continuation of the snowy range, and are subsequently lost in the lower mountains of Dootee. By the account of the natives, they are perpetually covered with snow. They are laid down in the best maps between the 29th and 30th degrees of latitude, whereas Sirinagur lies somewhat above the line of 30. But the elevation of the former must be much greater, I imagine, than the latter, and the climate vastly different; at all events, the trial is very well worth making. My people have returned from Gossain-Than, and have brought me small quantities of three different sorts of grain, two of rice, and one of wheat, raised in that quarter. No. 1 is the rice (mountain rice) formerly sent to you. No. 2 is rice from Gossain Than, which is sown in the month of July, and must consequently be subject to cold, if not to frost or snow, before it can come to perfection. No. 3 is rice from Gossain-Than, which is sown in the month of May. The rice khets (or fields) are made on the sides of the hills, partly in level spots, partly in terraces, and of course abundantly watered from above. No. 4 is wheat from Gossain-Than, which is about to be sown the end of this or the beginning of next month. It remains in the ground ten months, and is cut and collected in Jeth and Assar, that is in June. It remains stationary (or

its progress is scarcely perceptible), during the frosts; it springs up with the Spring, and comes to maturity in the warm months. This is the account given to me by the people, and I give it to you in the same terms. It is of course imperfect, but it is the best procurable in our situation, and we must make the most of it.

August 17th.

THE minister has not forgotten his promise to gratify me with specimens and supplies of rice from Jumlah; and I really think, from what I learn, we may be sanguine in our hopes of doing something with this supply, even should that which I before sent you fail. There are two kinds, and both different from that which I originally forwarded to you. I inclose a small portion of each, in order that you may distinguish the kinds, on the receipt of the boxes which I shall hereafter send to you. I have an immense quantity of it, and only wish I could provide you by wholesale. No. 1 is called Kala Marsee, and No. 2, Munsurra.

The former is esteemed the best rice, and is called the "Usl," or original grain of those hills. It attains a great bulk in the process of boiling, and is considered sweet and excellent by the natives.

No. 2 is also rice of a good quality and colour; they both came from Jumlah, where, as I before observed, the hill rice is cultivated in elevated and exposed situations. The soil is spoken of as inferior to that of the valley, but still rich. The cold is sufficiently indicated, by the summits of the mountains being, I believe, perpetually covered with snow. I could learn no difference in the mode of preparing the khets, from that observed in this quarter; and in the general mode of cultivation, I have nothing to add to what I before communicated. The precaution of steeping the seed in standing

water, untill it commences to germinate, is still insisted on, and they repeat that, if you succeed in raising the plants a few inches from the ground, no injury is to be apprehended from frost or snow.

N. WALLICH.

SIR;

Botanic Garden, Calcutta,
December 29th, 1819.

I HAVE great satisfaction in announcing that my friend Lieut. W. N. Forbes proceeding to England on the Boyne, has been so obliging as to take charge of three sorts of rice from Gossain-Than, in Napal, a place of vast elevation, and the most rigorous Winter. There are three sorts or varieties, respecting which, however, I have hitherto not procured any information, except that the dark-husked grain is called Dhan Mooya; the palest sort Dhan Mokya, and that which is the intermediate in colour Dhan Sittara.

Secondly, specimens of five sorts of Daphne paper, manufactured in the vicinity of Katmandu, communicated by my indefatigable friend Mr. Robert Stuart, from whom I have also received the preceding grains.

Thirdly, specimens of Daphne paper, which have been sent to me by my highly esteemed friend Sir Robert Colquhoun, from the province of Dhotee, to the eastward of Kemaon, where he is in command of the provincial battalion.

Fourthly, some papers of recent Sirinagur onion-seed,* also communicated by Sir Robert Colquhoun. Their produce is of a very large size, and superior flavour.

Fifthly, at the top of this box, as also occupying the whole of box No. 3, a number of panicles of a very interesting sort of Guinea-grass (*Andropogon cernuum* of Roxburgh—*Sorghum* of Willdenow), with perfectly ripe seed, which were produced

* This seed has not been received by the Society.

this month in my garden, from a number of plants, reared from seeds in January of this year, which I had received from my valuable assistant at Sylhel, the late Mr. M. R. Smith. In order to put you in possession of the best information I can possibly procure on this subject, I do myself the pleasure to give you the following extract from the manuscript *Flora Indica*, of Dr. Roxburgh :—

“ This species or variety of sorghum, is the kind cultivated by the inhabitants of the Monipare, Karhee, &c. mountainous districts, immediately east of Bengal. The grain is milk-white ; some of it was sown in the Botanic-garden at Calcutta, in the early part of the rainy season of 1812, and by November the plants were from ten to fifteen feet high, with several ramous stems from the same root or grain of seed ; all the joints of the lower half of the original stems, which are as thick as a slender walking cane, throw out copiously verticils of roots ; the lower ones, near the soil, enter it, and give additional support and nourishment to the plants, which are of two or more years duration, if suffered to remain. The leaves are from twenty to forty inches long, by two to three broad, soft and smooth. The grain is the staff of life of those wild savage mountaineers, who inhabit the above-mentioned countries, where it is one of the few articles cultivated by them : cattle are fond of the straw, or rather canes.”

Three large bales, containing entire stems of the calooe hemp, noticed in my former letters, will be shipped by order of government, on the Hon. Com. Ship Carnatic, about to leave this port in a fortnight hence, when I shall have the pleasure to address you more fully on this matter.

I am, Sir,

A. Aikin, Esq.

&c. &c. &c.

Secretary, &c. &c.

N. WALLICH.

SIR;

Botanic Garden, Calcutta,
January 20th, 1820.

I HAVE now the satisfaction of informing you, that the calooe hemp alluded to in several of my preceding letters, has been embarked in three large bales, by permission of government, on the Hon. Com. Ship Carnatic, which will leave Saugur Road in a couple of days.

Bales No. 1 and 2 contain each 2,500 entire stems of the calooe hemp-plant, (*Urtica tenacissima*, of Roxburgh—*Nivea* of Willdenow—*Rameum majus* of Rumphius), cut during the month of July last.

Bale No. 3 contains the bark peeled off 300 entire recent stems, immediately after being cut in July last. I have likewise added in this bale about 200 entire stems of Roxburgh's *urtica pulcherrima*, a charming large shrub, or rather small tree, of very rapid growth and easy cultivation. Although the fibre of this nettle is far less strong than that of the other, yet, I have thought it not entirely unworthy of being brought to the notice of your Society, especially on account of the two last-mentioned properties, which it possesses in a very eminent degree, those of rapid growth and easy cultivation. The various interesting papers on the calooe hemp, published by the late Dr. Roxburgh, have so completely exhausted the subject of its cultivation and management, as to render it entirely unnecessary to trouble you with any detail in these respects. I shall, therefore, conclude by saying, that Captain Blanchard, of the Carnatic, has most politely taken charge of a small package, containing specimens of a superior sort of Daphne, or Set Burrooa paper, manufactured at Lohoo Ghaut, in Kali-Kumaon, to the eastward of Almorah, by a jamadahr of captain M'Harg's battalion. They were sent to me by my friend Sir Robert Colquhoun, who commands at Al-

morah. In the hope that these dispatches may reach you in safety, and prove acceptable to the Society,

I am, Sir,

A. Aikin, Esq.,

&c. &c. &c.

Secretary, &c. &c.

W. WALLICH.

Botanic Garden, April 15th,
1820.

SIR;

I BEG leave to inclose a bill of lading for a small box of Mountain rice, supposed to be from Gossain-Than, in Napal, (proceeding on the Essex, Capt. Mahon.) The greater proportion below is called Hewjahkeewah, that above Hakoomarsewa. It was sent to me with a quantity of other sorts of rice, by my late friend Mr. R. Stuart, whose unexpected and untimely death it is now my mournful duty to announce to the Society. In that excellent young man this garden has lost a most valuable friend and contributor; and if, as I most anxiously hope, some of the dispatches of cereal grains, which I have had the honour of presenting to you since July last year, should be found of any value, it is to the unremitting zeal and attention of my lamented friend that I feel indebted for such a success. It is, however, a source of great satisfaction to me, to be able to assure the Society, that my excellent friend, the honourable Edward Gardner, the resident at Napal (having lately returned to Katmandu) will feel happy and proud to promote the objects in view as much as it is in his power; and I take this opportunity of earnestly requesting that I may be honoured for that purpose with the specific desiderata of the Society; the more so as I am preparing for a voyage up to that highly interesting country.

I am, Sir,

A. Aikin, Esq.

&c. &c. &c.

Secretary, &c. &c.

N. WALLICH.

SIR;

Botanic Garden, Chelsea,
Nov. 6th, 1821.

THE packets of Napaul Corn-seeds you were pleased to send me for trial last November, have produced a very pitiful return, but this in some measure may be ascribed to the very cloudy Summer we have had. In March we vegetated the five sorts of rice, all very well, except Jurmassee; of this there were only three plants succeeded. We followed your directions with one part of the seeds, and sowed the other part in pots, placed in pans of water; and it was in your way that Jurmassee vegetated: probably in that way debilitated seeds are less exposed to corruptive matter, than when put into the earth at first. I intend to try small seeds this way, as well as in pure sand, with little moisture, as I am assured, that old seeds coming in contact with putrid bodies in the mould, perish when the vegetating power is too faint to resist the contagious matter. The Andropogon is a large tuft of grass, but does not yet show flowers. The wheat has produced very good seeds, but not to be compared with the worst of the cultivated sorts; but we expect a better return next year, having sowed these new seeds as they ripened last month. The rices did all very well while they remained in hothouse heat; in May we placed them in the green-house where they became stout healthy plants; and in the end of June we planted five sorts in a well-sheltered bason of nine inches of water, and 12 of mud, where the Zizania, or Canadian rice thrives well: the four other parts we planted in a bog.

Those in the water grew, and promised well, till the beginning of August, when the weather became cloudy and cold; soon after that, they gradually became yellowish and sickly, and were all dead by the beginning of September: those planted in the bog never looked healthy; thence I suppose

the water to be the more steady temperature, from its greater power of attracting and retaining the daily influences of the sun.

To the above I must add, that I have made many trials of rice seeds from America, China, and Persia, but never succeeded with any but one, brought from the higher parts of the river Missouri, in N. W. America, by Mr. T. Nuttall, in 1816. The two warm Summers of 1817 and 1818, had raised a hope of consigning it to the attention of the farmer ; but this expectation was blasted when at its height, for in 1819 the harvest was so bad, that we just saved seeds sufficient to sow in 1820, when it totally failed.

I take the liberty of sending you a pot of a species sent me this last Spring from Moscow, where, if I understand Dr. Fischer aright, it is cultivated as a corn ; but I did not try it in the open ground this year ; and if I have better success next year, I shall be happy in communicating the result.

I am, Sir,

&c. &c. &c.

WILLIAM ANDERSON.

A. Aikin, Esq.

Secretary, &c. &c.